REMARKS

In the Office Action, claims 1-3 and 9 are rejected under 35 U.S.C. § 103(a) as being

unpatentable over U.S. Patent No. 5,854,999 to Hirayama ("Hirayama"). Applicants respectfully

traverse the rejection under 35 U.S.C. § 103(a), of claims 1-3 and 9. Claim 1 recites a speech

recognition system including a standard acoustic model having a standard vector, a first feature

vector generation section, a second feature vector generation section, and a preparation section.

The first feature vector generation section reduces noise from an input signal generated from

uttered speech corresponding to a designated text to generate a first feature vector. The second

feature vector generation section generates a second feature vector from the input signal having

the noise. The preparation section generates an adaptive vector based on the first feature vector,

the second feature vector and the standard vector.

Hirayama discloses a voice recognition system which recognizes a voice uttered from a

speaker. In Hirayama, a primary matching section 20 matches an input pattern provided by an

analyzer 10 to a reference pattern W. Based on the reference pattern W corresponding to the

input pattern V, a compensatory value calculator 40 calculates compensatory values C regarding

the input pattern by an averaging operation. *See* col. 9, ll. 12-38, and col. 10, ll. 6-24 of

Hirayama. Furthermore, a pattern compensating section 50 compensates the reference pattern W

according to the compensatory values for the input pattern obtained. Finally, the secondary

matching section 60 compares the reference pattern compensated as above, and the input pattern,

to obtain a recognition result. An environmental variation detector 70 controls a degree of

compensation to obtain an optimized value, which is called an environmental variation index. In

Hirayama, matching of the input signal and text is performed at the primary matching section 20. Accordingly, Applicants submit that Hirayama does not teach or suggest at least the feature of an input signal generated from uttered speech corresponding to a designated text, as recited in claim 1. Consequently, Applicants submit that Hirayama does not teach or suggest the combination recited in claim 1 comprising a first feature vector generation section for reducing noise from an input signal generated from uttered speech corresponding to a designated text.

Applicants respectfully traverse the Office Action's assertion at page 3 that "it is common in the art to train a speech recognition system by having a user speak designated text. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Hirayama to have the user generate the input signal corresponding to a designated text because it would allow the system to obtain the corresponding standard vector without a lengthy matching process hence having a faster adaptive process and so having more accurate speech models corresponding to the user's environment." To the extent that the Examiner continues to maintain this position, Applicants request that the Examiner identify a specific reference purporting to disclose such subject matter.

The present embodiment discloses a method for adapting an uttered voice to a model with a high degree of accuracy, giving a designated text for utterance. By matching a model series correctly corresponding to the designated text, and an uttered voice from which a noise is reduced, a matching between the undistorted uttered voice and the model series is performed. The present embodiment discloses the adaptation to the model according to this matching. In contrast to Hirayama, in which an uttered text is estimated by means of matching, the present embodiment can estimate an adaptation component with better accuracy. Using the language of

the mathematical expression in Hirayama, the process in the present embodiment would be expressed as follows:

1. Give a vector W0, which is unknown in Hirayama;

2. Obtain V0 by the first feature vector generation section;

3. Match V0 to W0;

4. Obtain V by the second feature vector generation section;

5. Obtain W by corresponding to the matching between V0 and W0; and

6. Obtain Aw and Bw, without averaging operation as disclosed in Hirayama.

In other words, at least steps 1 and 6 are missing from Hirayama. Moreover, because step 1 involving "give a vector zero" is not found in Hirayama, subsequent steps depending from step 1 (*e.g.* step 3) are apparently not taught also.

Hirayama cannot be modified as suggested by the Office Action at least because such a modification would change the principle of operation of Hirayama. As discussed in M.P.E.P. § 2143.01, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)."

Claims 2, 3 and 9 depend from claim 1 and recite the same combination of allowable features recited in claim 1, as well as additional features that define over the prior art. Accordingly, it is requested that the rejection under 35 U.S.C. § 103(a), of claims 1-3 and 9, be withdrawn.

Claims 4-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirayama in view of Shozakai et al., A Non-Iterative Model-Adaptive E-CMN/PMC Approach for Speech Recognition in Car Environments ("Shozakai"). Applicants respectfully traverse the rejection under 35 U.S.C. § 103(a), of claims 4-8. Claims 4-8 depend from claim 1 and recite the same combination of allowable features recited in claim 1, as well as additional features that define over the prior art. Applicants respectfully submit that Shozakai fails to overcome the above-described deficiencies of Hirayama. Accordingly, it is requested that the rejection under 35 U.S.C. § 103(a), of claims 4-8, be withdrawn.

CONCLUSION

In view of the foregoing, Applicants submit that the pending claims are in condition for allowance, and respectfully request reconsideration and timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution. A favorable action is awaited.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

DRINKER BIDDLE & REATH LLP

Dated: November 21, 2005   By: _____

Peter J. Sistare
Reg. No. 48,183

Customer No. 055694
Drinker Biddle & Reath LLP
1500 K Street, N.W., Suite 1100
Washington, DC 20005-1209
Tel.: (202) 842-8800
Fax: (202) 842-8465